APPENDIX B

REMEDIAL DESIGN AND REMEDIAL ACTION
STATEMENT OF WORK
FOR THE
HASTINGS GROUND WATER CONTAMINATION SITE
NORTH LANDFILL SUBSITE, OPERABLE UNIT 2

I. INTRODUCTION

A. Purpose

The purpose of this Statement of Work (SOW) is to describe the implementation of the Remedial Action set forth in the Record of Decision (ROD), which was signed by the Regional Administrator on August 25, 2006, for the Hastings Ground Water Contamination Site (Site), North Landfill Subsite (Subsite), Operable Unit 2 (OU 2). Settling Defendants shall follow the ROD, the Consent Decree (CD), this SOW, the approved Remedial Design/Remedial Action Work Plan, and EPA Superfund Remedial Design and Remedial Action Guidance and any additional guidance, including the attached index of reference documents in submitting deliverables for designing and implementing the Remedial Action at OU 2. This SOW has been incorporated into and made a part of the CD entered into by Settling Defendants and the United States for the Remedial Design/Remedial Action (RD/RA) for OU 2.

B. Site Background

The Subsite is located east of the city limits of Hastings, Adams County, Nebraska, on U.S. Highway 6 (Appendix C to the CD). The Subsite is bounded by the Burlington Northern Santa Fe (BNSF) Railway on the north, U.S. Highway 6 on the south, Midwest Engines, Becker Transportation, and several grain elevators on the east, and a construction facility and EZ Storage to the west. It occupies approximately 13.4 acres.

The Subsite has been divided into two operable units: 1) OU 10 addresses the soil at the Subsite; and 2) OU 2 addresses the ground water associated with the Subsite. The Remedial Action to address the contaminated ground water is the subject of the CD and this SOW and is expected to be the final response action selected for the Subsite.

C. The TCE Plume

Ground water monitoring results collected from MW-6 and MW-7 depicted in the map (Appendix C) indicate that TCE concentrations, located at the eastern downgradient border of the North Landfill, were steadily decreasing after 1997, and reached the maximum contaminant level (MCL) as established under the Safe Drinking Water Act, of 5 parts per billion (ppb) in 2002[1]. EPA agrees with the conclusions set forth in North Landfill Subsite Projected Attainment of Performance Standards[2], that 1) the decreasing levels of TCE indicated that the TCE plume emanating from the North Landfill was undergoing natural attenuation; 2) rising concentrations of TCE in MW-7 after March 2003 is attributable to the intrusion of an upgradient TCE source; and 3) without the introduction of the upgradient TCE source, the MCLs for TCE would have been reached at MW-7 by 2007 plus or minus one year. By using a transport rate of 1.2 feet per day and the distance of 4,600 feet from MW-7 to Well D, EPA calculated that all the TCE emanating from the North Landfill (in contrast to the TCE emanating from the upgradient source) will have reached Well D within 3,833 days or 10 ½ years. EPA has identified September 30, 2017 as a conservative estimate of the time it will take for the North Landfill TCE to reach Well D and achieve MCLs for the COCs which serves as the basis for the language of Paragraph 13 of the CD.

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1 *Five-Year Evaluation Report of the Performance of Well D, FAR-MAR-CO Subsite, Ground Water Operable Unit #06, Hastings Ground Water Contamination Site, Adams County, Nebraska* (Well D Report), part of the Administrative Record for the North Landfill Subsite.

2 Prepared by Hydro-Trace Inc. March 23, 2007, part of the Administrative Record for the North Landfill Subsite.

II. DESCRIPTION OF THE REMEDIAL ACTION AND PERFORMANCE STANDARDS

Settling Defendants shall design and implement the Remedial Action (RA) to meet the Performance Standards and specifications set forth in the ROD and this SOW. Performance Standards shall include cleanup standards, standards of control, quality criteria and other substantive requirements, criteria or limitations set forth in the ROD, and all Applicable or Relevant and Appropriate Requirements (ARARs) for OU 2.

The following description of the RA is divided into four components, labeled A through D. Each component consists of two subsections: description of component and list of Performance Standards.

A. Natural Attenuation

1. Description

Settling Defendants shall operate and maintain a Natural Attenuation System (NAS) to monitor and track the contaminated OU 2 ground water plume in order to verify that the plume attenuates and contamination levels are reduced to the levels where Performance Standards are achieved by September 30, 2017 or prior to that date if Settling Defendants can show that the MCLs have been achieved and maintained consistently in the OU 2 plume for at least one year. Settling Defendants shall utilize the concentration data to develop degradation rates and corresponding estimates of timeframes to achieve Performance Standards.

Settling Defendants shall collect and analyze ground water in conformity with the schedule set forth in Attachment 1 to this SOW.

2. Performance Standards

a) ARARs

- Federal Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), 40 CFR § § 141.50 and 141.61
- Nebraska Water Quality Standards for drinking water supplies, Title 118 of NDEQ Regulations
- Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring, RCRA 40 CFR § 264 Subpart F
- Title 178 and Title 456 of NDEQ Regulations governing monitoring well installation, well drilling, pump installation and well abandonment

b) Cleanup Levels

- OU 2 Aquifer: Achieve MCLs for COCs by September 30, 2017 or prior to that date when the data indicates MCLs have been achieved and consistently maintained in OU 2 for one year.

The COCs and their cleanup levels are listed below in parts per billion.

COC	**MCL**
Trichloroethene (TCE)	5
Cis – 1,2 Dichloroethene	70
Vinyl chloride	2

B. Hydraulic Containment Using Vertical Extraction Wells

1. Description

Settling Defendants shall coordinate by periodic oral or written communication with responsible parties at the FAR-MAR-CO Subsite, and with officials at Chief Ethanol to

ensure the continued operation of Well D (presently operated by the City of Hastings and others), Wells IN-05 and IN-11 (presently operated by Chief Ethanol), and Wells A, B, and C (presently operated by the City of Hastings at the Whelan Energy Center [WEC]). These wells, depicted in Appendix C to the CD, provide hydraulic containment of the impacted ground water plume associated with the Subsite to contain the migration of volatile organic compounds (VOCs) exceeding target concentrations in the ground water. The cessation of operation or impairment of any of these wells will require a modification to this SOW, consistent with Paragraph 14 of the CD.

2. Performance Standards

a) ARARs

- Federal Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs), 40 CFR § § 141.50 and 141.61
- Nebraska Water Quality Standards for drinking water supplies, Title 118
- Resource Conservation and Recovery Act (RCRA) Groundwater Monitoring, RCRA 40 CFR § 264 Subpart F

b) Cleanup Levels

- OU 2 Aquifer: Achieve MCLs for COCs, by September 30, 2017 or prior to that date, if the data indicates MCLs have been achieved and maintained consistently in OU 2 for one year.

C. Use As Non-Contact Cooling Water

1. Description

Settling Defendants shall ensure, by periodic monitoring, that water produced by Wells IN-05, IN-11, A, B, C, and D continues to be used as non-contact cooling water in the

power plant and run through the cooling tower at the WEC. This arrangement allows for contaminated ground water to be used in a productive manner without being a threat, then to be effectively treated by processing through the cooling tower. Any VOC contamination in the water as it reaches the cooling tower is driven off by the process.

2. Performance Standards

a) ARARs

- Federal Clean Air Act, 33 U.S.C. § 1251 et seq.
- Nebraska Air Pollution Control Regulations, Title 129

b) Cleanup Levels

- Emissions limited to no more than 2.5 tons/year of COCs

D. Institutional Controls

Institutional Controls are in place as a requirement of the Area-Wide Consent Decree, as referenced in Paragraph 27 of the CD.

III. SCOPE OF REMEDIAL DESIGN AND REMEDIAL ACTION

The main components of the RD/RA program are preparation of the RD/RA Work Plan, preparation of the RD/RA submittals, implementing the RD/RA, and preparing the final reports at the Completion of the RA, as required by Paragraph 50 of the CD and Completion of the Work as required by Paragraph 51 of the CD.

Within (30) days from EPA's authorization to proceed, consistent with Section XI. of the CD, Settling Defendants shall submit to EPA the draft RD/RA Work Plan. The RD/RA Work Plan shall include a Quality Assurance Project Plan (QAPP), described in Section VII. of this SOW. The RD/RA Work Plan shall also identify: a) the timing of sample collection, with the premise that sampling frequency will be consistent with that set forth in Attachment 1 to this SOW; b) location and depth of additional monitoring wells; c)

construction quality control plan for additional monitoring wells; d) analytical parameters by which a determination can be made whether natural attenuation is occurring; and e) all chemical constituent analytical parameters, including the COCs.

The RD/RA Work Plan shall document the responsibility and authority of all organizations and key personnel involved with the RD/RA and shall include a description of qualifications of key personnel directing the RD/RA, including contractor personnel. Settling Defendants shall include all plans, tasks, and schedules identified in this Paragraph of the SOW and in Paragraph 11 of the CD. Settling Defendants shall identify all Performance Standards and ARARs in the RD/RA Work Plan. The approval process set forth in Section XI. of the CD will be followed. Upon approval by EPA, the Settling Defendants shall implement the RD/RA Work Plan according to the schedule set forth therein.

IV. OPERATION AND MAINTENANCE

Settling Defendants shall prepare an Operation and Maintenance (O&M) Plan to cover both implementation and maintenance of the Remedial Action. An O&M Plan shall be submitted to EPA for review and approval with the first submittal of the RD/RA Work Plan. Settling Defendants shall submit the final O&M Plan to EPA 90 days after approval by EPA of the RD/RA Work Plan. The plan shall be composed of the following elements:

A. Description of normal operation and maintenance

- Description of tasks for operation;
- Description of tasks for maintenance;
- Description of prescribed treatment or operation conditions; and
- Schedule showing frequency of each O&M task.

B. Description of potential operating problems

- Description and analysis of potential operation problems;
- Sources of information regarding problems; and
- Common and/or anticipated remedies.

C. Description of routine monitoring and laboratory testing

- Description of monitoring tasks;
- Description of required data collection, laboratory tests and their interpretation;
- Required quality assurance and quality control;
- Schedule of monitoring frequency and procedures for a petition to EPA to reduce the frequency of or discontinue monitoring; and
- Description of verification sampling procedures.

D. Health and Safety (H & S) Plan

- Description of precautions, of necessary equipment, etc., for site personnel; and
- Safety tasks required in event of systems failure.

E. Description of equipment

- Equipment identification; and
- Replacement schedule for equipment and installed components.

F. Records and reporting mechanisms

- Operating logs;
- Laboratory records;

- Mechanism for reporting emergencies; and
- Personnel and maintenance records.

V. MODIFICATION OF SOW AND RELATED WORK PLANS

Description

If EPA determines that additional Work is necessary to achieve Performance Standards, within 60 days of such notice, Settling Defendants shall modify the RD/RA Work Plan, consistent with Paragraph 14 of the CD, to include the submittal of a Work Plan for the design and implementation of the additional Work. Upon approval by EPA, the modified RD/RA Work Plan shall become incorporated into the SOW. Upon receipt of EPA's approval of the plan, Settling Defendants shall implement the revised RD/RA Work Plan.

If the additional Work includes the installation and operation of additional monitoring wells, Settling Defendants shall design a monitoring well system that includes a sufficient number of monitoring wells screened at various locations and depths within and beyond OU 2 to achieve the following monitoring objectives:

a) Ensure the public is protected from exposure to the COCs in OU 2 above health-based levels; and

b) Monitor the attenuation rate of the OU 2 plume.

This provision does not preclude EPA from requiring that a different modification to the SOW or related Work Plans be undertaken by Settling Defendants, consistent with Paragraph 14 of the CD or that Further Response Actions be performed, consistent with Paragraph 20 of the CD.

Performance Standards

a) ARARs -

- to be identified in Modified RD/RA Plan

b) Cleanup Levels

- OU 2 Aquifer: Achieve and consistently maintain MCLs for COCs. for one year

A. Modified RD/RA Work Plan

Settling Defendants shall prepare for review and approval by EPA a Modified RD/RA Work Plan which shall be subject to approval as described in Section XI. of the CD. The Modified RD/RA Work Plan will include, but not be limited to, the elements set forth in Paragraph 11 of the CD.

B. Modified RD

If the modification to the Work that EPA identifies includes installation of wells, Settling Defendants shall submit the Modified RD within 90 days of approval of EPA's Modified RD/RA Work Plan. The Modified RD shall be subject to approval, consistent with Section XI. of the CD. The Modified RD shall include reproducible drawings and specifications suitable for bid advertisement. In addition, the following plans, which are further described in Section VII. of this SOW, shall be included:

- Performance Standard Verification Plan;
- Construction QAPP, as appropriate;
- QAPP, H & S Plan, Contingency Plan;
- Operation and Maintenance Plan;

- Capital and Operation and Maintenance Cost Estimate. This cost estimate shall refine the OU 2 Feasibility Study cost estimate to reflect the detail presented in the Modified RD;
- Project Schedule for the construction and implementation of the RA, as required by this modification, which identifies timing for initiation and completion of all critical path tasks. The final project schedule submitted as part of the Modified RD shall include specific dates for completion of the project and major milestones.

C. Modified RA

Upon approval of the Modified RD, Settling Defendants shall implement the Modified RA as specified in the Modified RD and the Modified RD/RA Work Plan.

VI. INSPECTIONS, CERTIFICATIONS AND FINAL REPORTS

A. Completion of the Remedial Action

Settling Defendants shall schedule a pre-certification inspection and submit a report, consistent with Paragraph 50 of the CD, which includes a certification of completion of the Remedial Action by a responsible corporate official.

B. Completion of the Work

Settling Defendants shall schedule a pre-certification inspection and submit a report, consistent with Paragraph 51 of the CD, which includes a certification of completion of the Work (including O & M) by a responsible corporate official.

VII. CONTENT OF SUPPORTING PLANS

The documents listed in this section -- the QAPP, the H & S Plan, and the Contingency Plan -- are documents which Settling Defendant shall prepare and submit to EPA in accordance with Sections III. and V. of this SOW. The following section describes the required contents of each of these supporting plans.

A. Quality Assurance Project Plan

Settling Defendants shall develop a site-specific QAPP, covering sampling procedures and data handling for samples collected pursuant to the Consent Decree, this SOW and guidance provided by EPA. Settling Defendants shall make the QAPP consistent with the data requirements of the project as specified by this SOW and with Section VIII. of the CD. At a minimum, the QAPP shall include the following elements.

1. Project Description

- Facility Location History
- Past Data Collection Activity
- Project Scope
- Sample Network Design
- Parameters to be Tested and Frequency
- Project Schedule

2. Project Organization and Responsibility

3. Quality Assurance Objective for Measurement Data

- Level of Quality Control Effort
- Accuracy, Precision and Sensitivity of Analysis
- Completeness, Representativeness and Comparability

4. Sampling Procedures

5. Sample Custody

- Field Specific Custody Procedures
- Laboratory Chain of Custody Procedures

6. Calibration Procedures and Frequency

- Field Instruments/Equipment Laboratory Instruments

7. Analytical Procedures

- Non-CLP or CLP Analytical Methods
- Field Screening and Analytical Protocol
- Laboratory Procedures

8. Internal Quality Control Checks

- Field Measurements
- Laboratory Analysis

9. Data Reduction, Validation, and Reporting

- Data Reduction
- Data Validation
- Data Reporting

10. Performance and System Audits

- Internal Audits of Field Activity
- Internal Laboratory Audit
- External Field Audit
- External Laboratory Audit

11. Preventive Maintenance

- Routine Preventative Maintenance Procedures and Schedules
- Field Instruments/Equipment
- Laboratory Instruments

12. Specific Routine Procedures to Assess Data Precision, Accuracy, and Completeness

- Field Measurement Data
- Laboratory Data

13. Corrective Action

- Sample Collection/Field Measurement
- Laboratory Analysis

B. Health and Safety Plan

Settling Defendants shall develop a H & S Plan which is designed to protect on-site personnel and area residents from physical, chemical and all other hazards posed by this Remedial Action. The safety plan shall develop the health-based levels and criteria necessary to address the following areas:

- Levels of protection;
- Safe work practices and safe guards;
- Personal and environmental air monitoring;
- Personal protective equipment;
- Decontamination - personal and equipment;
- Site work zones; and,
- Contingency and emergency planning.

The H & S Plan will follow EPA guidance and all OSHA requirements as outlined in 29 CFR §§1910.120 as well as the NCP requirements at 40 C.F.R. §300.150.

C. Contingency Plan

Settling Defendants shall submit a Contingency Plan describing procedures to be used in the event of an accident or emergency at the site. The Contingency Plan shall be submitted with the RD/RA Work Plan. The Contingency Plan shall include, at a minimum, the following:

- Name of the person or entity responsible for responding in the event of an emergency incident;
- Plan and date(s) for meeting(s) with the appropriate local community, State and Federal agencies interested in the Remedial Action; i.e., local emergency squads and hospitals;
- First aid medical information; and,
- Spill Prevention, Control, and Countermeasures (SPCC) Plan as specified in 40 CFR Part 109 describing measures to prevent and contingency plans for potential spills and discharges from materials handling and transportation.

VIII. SUMMARY OF MAJOR DELIVERABLES/SCHEDULE

A summary of the key reporting requirements for which Settling Defendants shall be responsible is presented below:

SUBMISSION	DUE DATE
Establish Performance Guarantee	Within 30 days of entry of the CD
RD/RA Work Plan including O & M Plan	Within 30 days of EPA's notice to proceed
Final O & M Plan	Within 90 days after approval of the RD/RA Work Plan
Monitoring Reports	Four times a year beginning on the 10th day of third month after ground water sampling is initiated and continuing until otherwise notified by EPA.
Progress Reports	Monthly beginning on 10th day of month immediately after entry of the CD for 12 months, then annually until EPA determines a different frequency
Modified RD/RA Work Plan	Within 60 days of EPA notification to do additional Work
Modified RD	Within 90 days of EPA approval of the Modified RD/RA Work Plan
Modified RA	Upon EPA approval of the Modified RD
Completion of the Modified RA	Within 180 days after the approval of the Modified RD/RA Work Plan
Pre-Certification of RA Inspection	Within 90 days after Settling Defendants conclude RA has been completed
Report Requesting Certification of Completion of RA	Within 30 days after inspection by EPA

IX. REFERENCE DOCUMENTS

The National Contingency Plan, 40 C.F.R. Part 300

"Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," US EPA, Office of Emergency and Remedial Response, October, 1988, OSWER Directive No. 9355.3-01.

"A Compendium of Superfund Field Operations Methods," Two Volumes, USEPA, Office of Emergency and Remedial Response, EPA/540/P-87/001a, August, 1987, OSWER Directive No. 9355.0-14.

"EPA NEIC Policies and Procedures Manual," May, 1978, revised November, 1984, EPA-330/9-78-001-R.

"Data Quality Objectives for Remedial Response Activities," US EPA, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, EPA/540/G-87/003, March, 1987, OSWER Directive No. 9335.O-7B.

"EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," US EPA, Quality Assurance Division, Washington, DC, EPA QA/R-5, October 1998.

"Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans," US EPA, Office of Emergency and Remedial Response, QAMS-005/80, December, 1980.

"Users Guide to the EPA Contract Laboratory Program," US EPA, Sample Management Office, August, 1982.

"CERCLA Compliance with Other Laws Manual," Two Volumes, US EPA, Office of Emergency and Remedial Response, August, 1988, (draft), OSWER Directive No. 9234.1-01 and -02.

"Guidance on Remedial Actions for Contaminated Ground Water at Superfund Sites," US EPA, Office of Emergency and Remedial Response, (draft), OSWER Directive No. 9283.1-2.

"Superfund Exposure Assessment Manual," US EPA, Office of Emergency and Remedial Response, September 22, 1987, OSWER Directive No. 9285.5-1.

"Health and Safety Requirements of Employees Employed in Field Activities," US EPA, Office of Emergency and Remedial Response, July 12, 1981, EPA Order No. 1440.2.

OSHA Regulations in 29 CFR 1910.120 (Federal Register 45654, December 19, 1986).

"Advancing the Use of Treatment Technologies for Superfund Remedies," (OSW 9355.0-26).

"Closure of Hazardous Waste Surface Impoundments," (OSW: 9476.00-02).

"Contract Laboratory Program (CLP) Users Guide," EPA, 1988.

"Design and Development of a Hazardous Waste Reactivity Testing Protocol," (OSW: 600/2-84-057).

"Guidance Manual on Hazardous Waste Land Treatment Closure/Post-Closure," 40 CFR Part 265 (NTS: PB87-183 195).

"Methods for Evaluating the Attainment of Cleanup Standards," Volume II, (Pepe Lecayo, PM-223).

"RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements," (OSW: 530/SW-87-010).

"RCRA Policy Compendium of Subparts G and H," (OSW: 9476.00-07).

"Statistical Analysis of Ground Water Monitoring data at RCRA Facilities," Interim Final Guidance, (OSW: 530-SW-89-026).

"Technical Guidance for Corrective Measures: Determining Appropriate Technology and Response for Air Releases," Draft Final Report, (OSW: 53/SW-88-021).

"Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," Third Edition, (OSW: SW-846).

"Toxicity Characteristic," Final Rule, (EPA/OSW-FR-89-026).

"EPA Superfund Remedial Design and Remedial Action Guidance" (OSWER Directive 9355.O-4A)

Guidance on Expediting Remedial Design and Remedial Action, (EPA/540/G-90/006).

Final Standard Quality Assurance Project Plan Content Document Prepared by Camp, Dresser and McKee Inc. for Region V, June 1989.

Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act, Fed. Req. 40 CFR Part 136, October 1984.

Evaluation of Ground-Water Extraction Remedies: Phase II, Vol. I and II. EPA Publ. 9355.4-05.

Guidance for Planning for Data Collection in Support of Environmental Decision Making Using the Data Quality Objectives Process, EPA QA/G-4, Interim Final 1993.